What is claimed is:

1. An optical head comprising:

a first light source for generating light with a first wavelength λ_2;

a second light source for generating light with a second wavelength λ_1 that is shorter than the first wavelength;

an objective lens for converging the light from the first light source and the light from the second light source; and

a phase grating disposed between the objective lens and the first or second light source for increasing or decreasing the size of the beam of light of at least one of the first and second wavelengths, the phase grating having a groove with a depth d, wherein the phase grating satisfies $(n_2-n_1)d>\lambda_1$, where n_2 is the refractive index of the phase grating and n_1 is the refractive index of the areas around the phase grating.

2. The optical head according to claim 1, wherein the phase grating increases or decreases the size of the beam of light from at least one of the first and second light sources in shorter-axis and longer-axis directions with different magnifications.

3. The optical head according to claim 1, wherein the phase grating satisfies:

$$\left(n+\frac{\theta^1}{2\pi}\right)\lambda_1=\left(m+\frac{\theta^2}{2\pi}\right)\lambda_2$$

where n and m are integers, θ^1 is a phase difference provided to the first wavelength, and θ^2 is a phase difference provided to the second wavelength.

4. The optical head according to claim 1, wherein the phase grating comprises a substrate having a step- or sawtooth-shaped blazed grating formed on both sides thereof.

5. The optical head according to claim 4, wherein, of the diffraction light produced by the blazed grating, a zero-order or first-order diffraction light is used.

6. The optical head according to claim 1, wherein the phase grating comprises a first grating for increasing the size of the beam of at least one of the first and second wavelengths, and a second grating for reducing the size of the thus increased size of the beam.

7. The optical head according to claim 1 wherein the phase grating comprises a first grating for reducing the size of the beam of at least one of the first and second wavelengths, and a second grating for increasing the thus reduced size of the beam.

8. The optical head according to claim 1, wherein the phase grating does not change the size of the beam of the first wavelength.

9. The optical head according to claim 1, wherein the phase grating does not change the size of the beam of the second wavelength.

10. The optical head according to claim 1, wherein the phase grating reduces the size of the beams of both the first and second wavelengths.

11. The optical head according to claim 1, wherein the phase grating reduces the size of the light of the first wavelength while increasing the size of the light of the second wavelength.

12. The optical head according to claim 1, wherein the first wavelength is about 780 nm and the second wavelength is about 650 nm.

13. The optical head according to claim 1, wherein the phase grating is disposed in the optical path of divergent light.

14. The optical head according to claim 1, wherein the phase grating is disposed in the optical path of collimated light.

15. The optical head according to claim 1, wherein the optical head is a recording head for recording information on a recording medium using the light of the first and second wavelengths.

16. An optical head comprising:

a module including a first light source for generating light of a first wavelength λ_1 and a second light source for generating light of a second wavelength λ_2 that is shorter than the first wavelength;

an objective lens for converging the light from the first light source and the light from the second light source; and

a phase grating disposed between the objective lens and the first or second light source for increasing or decreasing the size of the beam of light of at least one of the first and second wavelengths, the phase grating having a groove with a depth d, wherein the phase grating satisfies $(n_2-n_1)d>\lambda_1$, where n_2 is the refractive index of the phase grating and n_1 is the refractive index of the areas around the phase grating.

17. The optical head according to claim 16, wherein the phase grating is integrally formed with the module.